Industrial Arts and Vocational Education

VOLUME 25

1936

THE BRUCE PUBLISHING COMPANY

NEW YORK MILWAUKEE CHICAGO

SUBJECTS

Administration

Challenge of Industrial Arts, F. Theodore Struck, 295
Criteria of Curriculum Construction, Burl N. Osburn, 229
Idle Industrial-Arts Classrooms, William W. Wills, 306
Industrial Arts in the Smaller School, Wm. J. Micheels, 182
Industrial Arts Meets the Challenge, Frederick James Moffitt, 81
Organizing Evening Classes, Reginald A. Ivy, 297
Practical Arts as Moral Education, Arthur B. Mays, 165
Training Youth to Meet Its New Needs, Deyo B. Fox, 371
Useful Publicity Program, D. W. Castle, 240
Vocational Education, Edward A. Fitzpatrick, 370
What to do with the Dull Child?, Paul C. Hoopes, 8

Aeronautics

Atwood's Championship Monoplane, Terence Vincent, 248
Aviation in the High School, J. W. Giachino, 236

Answers to Questions

Cheap Finish for Kindergarten Blocks and Beads, 360
Finishing Pine Wainscoting, 294
Plating Gray-Iron Book Ends, 360
Refinishing a Black-Walnut Gunstock, 395
Shellac, Varnish, Lacquer — What?, 393
Veneering Walnut on Cedar, 293
White and Silver Effects on Christmas Tree, 393

Apprenticeship

Machine-Shop Apprentice Training, Rowland L. Hill, 41

Arts and Crafts

Bedside Lamp, Karl J. Miller, 356
Buckle Bracelet, Jos. J. Meyer, 157
Enameling for Beginners, Gertrude S. Twichell, 206
Napkin Clip, William J. Becker, 347
Pewter and Pewter Plates, Emerson W. Manzer, 344
Zipper Brief Case, Ross C. Cramlet, 97

Auto Mechanics

Auto as a Vitalizing Factor, John E. Quick, 271
Auto-Mechanics-Shop Test, George G. Mann, 357
Cradle for Surface Gauge, Frank Muir, 20
Emery Wheel Safety, R. W. Burgett, 318
Horsepower, Michael Evancho, 23
Hydraulic Absorption Dynamometer, M. D. Taylor, 286
Magnet Charger, S. O. Werner, 350
Portable Storage Boxes, F. B. Miller, 257
Rewinding an Armature, R. F. Jennings, 22
Vocational Automotive Electricity, Arthur Krogstie, 213

Bibliographies

Johann Gutenberg, Inventor and Printer, 381
Kelvin, the Scientist, 338

Boats

Marblehead-Class Sailing Sloop, Claude Wm. Horst, 117, 145
Sailing Kinks, Claude W. Horst, 16

Cement and Concrete Work

Imitation Marble Projects, D. V. Middleton, 23
Simple Bird Bath, George G. Greene, 157

Clubs

Extracurricular Activities, George M. Brace, 173

Course Outlines

Vocational Automotive Electricity, Arthur Krogstie, 213

Drafting — (Architectural and Mechanical)

PAGES IN EACH ISSUE

January	1– 32
February	33– 70
March	71–100
April	101–134
May	135–164
June	165–198
July	199–228
August	229–258
September	259–294
October	295–328
November	329–362
December	363–398

Accurate Boy-Made Slide Rule, John Edmund Crawford, 190
Analysis of Architectural Drafting, H. D. Campbell, 101
Analysis of Senior-High-School Mechanical-Drawing Texts, D. W. Brown, 110
Architectural Drawing Test No. 7 and Scoring Sheet (Supplement), Ren Aton, July
Chords for Spacing Off Circumferences (Supplement), October
Computative Method for Centering Views, Emil E. Shattow, 318
Decimal Equivalent Tables (Supplement), September
Drafting-Room Practice, Heber A. Sotzin, 267
Draftsman's Case, J. E. Ray, 351
Grading Mechanical Drawing, Stanley S. Radford, 377
Judging Drawings at Exhibits, Arthur R. Ayers, 18
Machine Screws, J. K. Olsen, 185
Mechanical Drawing in Wisconsin, Harvey W. Waffle, 332
Pencil Points, Carl H. King, 352
Providing for Individual Differences, F. R. Kepler, 330
Steam Engine and Boiler, August Flam, 186
Survey of Drafting-Room Practices, F. R. Kepler, 71
That Confusing "Side View," August Flam, 20
That Confusing "Side View" Again, F. R. Kepler, 38A
Tray for Drafting Instruments, P. G. Frasier, 387
Why Teach Mechanical Drawing, Harvey W. Waffle, 3
Working Models for the Drafting Room, Val H. Aurit, 256

Editorials

Advancing Oneself Professionally, 10
Advancing the Interests of the Teacher and of the School Shop, 339
And Still There Are Doubters, 90
Annual Conventions, 339
Asking General Questions, 115
Awarding School Contracts to the Lowest Bidder, 90
Change and the Shop Teacher, 11
Conserving America's Man Power, 309
Dawn of the New Year, 11
George-Deen Act, 278
Homecrafter vs. the School Shop, 381
Johann Gutenberg, Inventor and Printer, 381
Kelvin, the Scientist, 338
Mannerisms in the Classroom, 10
Memorable Anniversary, 212
Plan That Deserves Study, 212
Prevacation Thoughts, 114
Real Need, 279
Requisition Time, 151
Sane Fourth, 239
School-Shop Visit, 308
Study of Industry, 212
Surveys Which the Shop Teacher Can Make, 114
This Matter of Testing, 115
Time to Close Shop, 179
Training Our Future Craftsmen, 278
Vacation Time, 151
What Vocational Education Has Done for the Unemployed, 239
Worth-While Addition, 278
Worth-While Youth Movement, 308
Youth Movement, 179

Electricity

Accurate Boy-Made Slide Rule, John Edmund Crawford, 190
A.C.-D.C. Radio Receiver, Gilbert Oberweiser, 382
Alternating-Current Bell or Buzzer, Byron M. Taylor, 385
Alternating-Current Buzzer, H. R. Troyer, 353
Care of Electrical Measuring Instruments in the School Shop, H. Trelease, 189
Course in Electricity for the Junior High School, Tilden Collar, 69
Electric Candle, Leonard Wright, 125
Electric Stove, E. A. Rerucha, 122
Electrical Test, H. J. Johnson, 281
Inexpensive Conduit Work, J. McSweeney, 353
Installing Traffic Signals, B. E. Smead, 162
Magnet Charger, S. O. Werner, 350
Portable Multi-Purpose Testing Panel, Jesse E. Rathbun, 348
Rewinding an Armature, R. F. Jennings, 22
Solenoid Engine, Frank D. Rohmer, 223
Universal Ohmmeter, Gilbert Oberweiser, 155
Vacation Enjoyed by Students of Electricity, B. E. Smead, 162
Vocational Automotive Electricity, Arthur Krogstie, 213

Foundry

Casting in the School Shop, N. A. McMillan, V, 116; VI, 280; VII, 379

General Shop

Alternating-Current Buzzer, H. R. Troyer, 353
Bedroom Chair Made from a Nail Keg, Herbert Bast, 26
Brackets and Signs for Home and Business, Harold O. Akeson, 332
Camp Knife, W. Ben Hunt, 27
Candy Dish, Jos. J. Lukowitz, 283
Colonial Lamp, Gerald A. Boate, 316
Dinner Chime, E. LeRoy Longley, 128
Flowerpot Bracket, Fred W. Megow, 162
General Metal-Shop Organization, G. A. Wickman, 141
General-Shop Organization, James C. Jenkins, 374
General Shop and the Student, Harold J. Davison, 199
Glazing Frame, B. E. Banks, 326
Ice Cutter, Dean Johnson, 355
Imitation Marble Projects, D. V. Middleton, 23
Marbled Penholders, Jos. J. Lukowitz, 28
Memo Pad, Wayne S. Scott, 125
Metal Wall Plaque, Paul Marschner, 123
Shoe Rack, Fred W. Megow, 320
Suggestive Designs for Breadboards, E. H. Grosskopf, 160

Grades and Grading

Grading Mechanical Drawing, Stanley S. Radford, 377
How Do You Grade Or Mark?, Stanley J. Pawelek, 145
Profile-Type Rating Card, F. C. Finsterbach, 214

Guidance

Guidance and Industrial Arts, Russell H. Landis, 7
Strengthening Industrial-Arts Testing and Guidance, George C. Decker, 172

Hobbies

Easy Method for Binding Loose Leaves, Lee M. Klinefelter, 158
Extracurricular Activities, George M. Brace, 173

Home Shop

Home-Workshop Organization, Ross C. Cramlet and Wm. L. Hunter, 259
Stimulating Interest in the Home Workshop, Allen A. Cooper, 329

Illustrative Material

Displaying Visual Aid Material, H. L. Stiles, 388

Industrial Arts

Accommodating the Larger Class, Harry J. McStay, 45
Auto as a Vitalizing Factor, John E. Quick, 271
Challenge of Industrial Arts, F. Theodore Struck, 295
Chart — General-Metal-Shop Organization and Objectives, William J. Becker, 195
Class Personnel Organization, Stanley S. Radford, 275
Commencement Address, Robert C. Woellner, 201
Controlling Theft in the Schoolshop, E. L. Southard, V. J. Lockett, M. M. Black, 55
Criteria of Curriculum Construction, Burl N. Osburn, 229
Directory, Fred C. Finsterbach, 313
Displaying Visual Aid Material, H. L. Stiles, 388
Easy Method for Binding Loose Leaves, Lee M. Klinefelter, 158
Education for the Subnormal Boy, Paul L. Caulwell, 54
Enlarging Drawing with Opaque Projection Lantern, Jos. J. Lukowitz, 253
Extracurricular Activities, George M. Brace, 173
Fable for the Ex-Tadpole Class, Edwin M. Wyatt, 312
General Metal-Shop Organization, G. A. Wickman, 141
General Shop and the Student, Harold J. Davison, 199
Graduate Work, R. W. Burgett, 1
Guidance and Industrial Arts, Russell H. Landis, 7
Guiding Principles in Planning a Course in Woodwork, Sam M. Ford, 216
Home-Workshop Organization, Ross C. Cramlet and Wm. L. Hunter, 259
How Do You Grade or Mark?, Stanley J. Pawelek, 145
How Do You Interpret Industrial Arts?, William E. Warner, 33
Idle Industrial-Arts Classrooms, William W. Wills, 306
Industrial Arts in Teacher Colleges, Paul T. McHenry, 176
Industrial Arts in the Smaller School, Wm. J. Micheels, 182
Industrial Arts Meets the Challenge, Frederick James Moffitt, 81
Industrial-Arts Teacher of the Future, James E. Hopkins, 277
Industrial-Arts Work in the Lower Grades, G. H. Snaddon, 103
Industrial Education and Industrial Museums, John Woodman Higgins, 137
Industrial Laboratory, A. C. Tagg and Leslie E. Wagner, 35
Industrial Trip, Stanley S. Radford, 208
Interest and Learning, Gilbert L. Betts and Roy R. Van Duzee, 135
Maintenance Man of Real Property, Edward C. Galligan, 88
Organizing Evening Classes, Reginald A. Ivy, 297
Points for Personal Analysis, Louis M. Roehl, 248
Practical Arts as Moral Education, Arthur B. Mays, 165
Pushmobile Race, Wilbur S. Nay, 12
Reading of Trade Magazines in School Shops, William J. Patlow, 58
Responsibility of the Industrial-Arts Teacher, Thomas Diamond, 78
San Antonio Greets the American Vocational Association, Arda Talbot Raht, 363
Securing Public Approval for the School Printshop, Bert Popowski, 150
Shopwork for the Special Class, Kenneth R. LaVoy, 53
Stimulating Interest in the Home Workshop, Allen A. Cooper, 329
Straight Thinking About Integration, Jesse E. Rathbun, 234
Strengthening Industrial-Arts Testing and Guidance, George C. Decker, 172
Teaching Aids, Carl von Lindeman, 191
Thoughts for this Year's Graduates, Douglas B. Hobbs, 143
Three Degrees in Industrial Education, Dr. Homer J. Smith, 85
Trade-Vocabulary Word Study: The Engine Lathe, Victor J. Smith, 304
Training Youth to Meet Its New Needs, Deyo B. Fox, 371
Useful Publicity Program, D. W. Castle, 240
Vacation Enjoyed by Students of Electricity, B. E. Smead, 162
Vocabulary Load of the Individual Instruction Sheet, Max S. Henig, 300
What to do with the Dull Child?, Paul C. Hoopes, 8

Instruction Sheets

Enlarging Drawings with Opaque Projection Lantern, Jos. J. Lukowitz, 253
Trade Vocabulary Word Study: The Engine Lathe, Victor J. Smith, 304
Vocabulary Load of the Individual Instruction Sheet, Max C. Henig, 300

Leatherwork

Zipper Brief Case, Ross C. Cramlet, 97

Machine Shop

Brass Candlesticks, Emanuel E. Ericson, 91
Chords for Spacing Off Circumferences (Supplement), October
Cradle for Surface Gauge, Frank Muir, 20
Cut-Off Tool, J. K. Olsen, 322
Decimal Equivalent Tables (Supplement), September
Emery Wheel Safety, R. W. Burgett, 318
Hydraulic Absorption Dynamometer, M. D. Taylor, 286
Machine Screws, J. K. Olsen, 185
Machine Shop Apprentice Training, Rowland L. Hill, 41
Paperweight, D. G. Miller, 353
Steam Engine and Boiler, August Flam, 186
Teaching Machine-Shop Practice, H. F. Kieckheafer, 340
Turned Match Box, William J. Becker, 284

Metal Box (Wrought Iron, Forging)

Artistic Wrought-Iron Work (Supplements), C. Weiler and Karl Ufer, III, 14; IV, 34A; V, 89; VI, 113
Bedside Lamp, Karl J. Miller, 356
Bending Jig, A. H. Luehring, 220
Brackets and Signs for Home and Business, Harold O. Akeson, 322
Brass Candlesticks, Emanuel E. Ericson, 91
Buckle Bracelet, Jos. J. Meyer, 157
Camp Knife, W. Ben Hunt, 27
Candy Dish, Jos. J. Lukowitz, 283
Casting in the School Shop — V, N. A. McMillan, 116; VI, 280; VII, 379
Chart — General-Metal-Shop Organization and Objectives, William J. Becker, 195
Colonial Lamp, Gerald A. Boate, 316
Coloring and Finishing Copper and Brass, Wilbur C. Getz, 252
Combination Bending Jig, Warren A. Walker, 193
Copper Scroll Plant Holder, S. H. Puehler, 385
Cradle for Surface Gauge, Frank Muir, 20
Dressing a Carborundum Stone, Frank Cerveny, 258
Dressing Carborundum Stones, Robert Studebaker, 163
Emery Wheel Safety, R. W. Burgett, 318
Enameling for Beginners, Gertrude S. Twichell, 206
File Box, Byron M. Taylor, 293
Fireplace Set, H. H. Henderson, 388
Flowerpot Bracket, Fred W. Megow, 162
Gas Washer, George C. Donson, 257
Ice Cutter, Dean Johnson, 355
Jardiniere Stand, Oran H. Beaty, 359
Machine Screws, J. K. Olsen, 185
Memo Pad, Wayne S. Scott, 125
Metal Desk or Table Lamp, S. H. Puehler, 152
Metal Wall Plaque, Paul Marschner, 123
Mocking Bird Ash Tray, Murray V. Churchill, 290
Modernistic Smoking Stand, Lawrence E. Wolske, 91
Modernistic Wastebasket, A. M. Helgerson, 125
Napkin Clip, William J. Becker, 347
Novel Ash Receiver, S. H. Puehler, 392
Pages from a Museum Sketchbook (Trivet Candlestick), Burl N. Osburn, 26
Paperweight, D. G. Miller, 353
Perpetual Calendar, H. J. Reitz and W. F. Jahnke, 384
Pewter and Pewter Plates, Emerson W. Manzer, 344
Portable Storage Boxes, F. B. Miller, 257
Rebuilding Hammer Edges with Oxyacetylene Torch, E. D. Soderstrom, 123
Screw-Driver Shield, Jos. J. Lukowitz, 219
Seas-O-Tainer, Dale E. Mansperger, 93
Sheet-Metal Urns, H. E. Andersen and W. A. Devette, 320
Shoe Rack, Fred W. Megow, 320
Soldering Tray, Thomas E. Houston, 254
Solenoid Engine, Frank D. Rohmer, 223
Thoughts for this Year's Graduates, Douglas B. Hobbs, 143
Weather Vane, William J. Becker, 292
Workshop-Bench Legs, D. C. Unger, 390
Wrought-Iron Hot-Pot Stand, John J. Frick, 158

Poems

Bunch of Keys, Orville Hayford, 136
Progress, 238

Posters

Accuracy, Louis M. Roehl, 97
Adaptability, Louis M. Roehl, 325
Ambition, Louis M. Roehl, 293
Confidence, Louis M. Roehl, 294
Courtesy, Louis M. Roehl, 130
Educational Charts, Frank C. Cech, 246
Impatience, Louis M. Roehl, 326
Judgment, Louis M. Roehl, 388
Knowing the Objective, Louis M. Roehl, 97
Self-Control, Louis M. Roehl, 387
Silent Teacher, Delmar Olson and Wm. L. Hunter, 242
Sympathy, Louis M. Roehl, 129
Tact, Louis M. Roehl, 355
Vigor, Louis M. Roehl, 356

Printing

Marbleizing for Printshop, Frank DiGiacomo, 355
New Idea on Indention, J. Woodard Auble, 354
Organizing Printshop Production, R. Randolph Karch, 210
Perpetual Calendar, H. J. Reitz and W. F. Jahnke, 384
Printing Education in America — I, Chester A. Lyle, I 231; II, 264; III, 301
Printing-Woodworking Project, R. Randolph Karch, 319
Printshop Clean-Up System, Harold R. Johnson, 312
Reading of Trade Magazines in School Shops, William J. Patlow, 58
Securing Public Approval for the School Printshop, Bert Popowski, 150
Testing the Knowledge of Proofreaders' Marks, Clifford K. Lush, 130

Professional Improvement

Points for Personal Analysis, Louis M. Roehl, 248

Related Work

Sandalwood, Ed. Blanchard, 244

Research Studies

Age at Entrance and Term of Stay, Max S. Henig, 203
Industrial Arts in Teacher Colleges, Paul T. McHenry, 176
Interest and Learning, Gilbert L. Betts and Roy R. Van Duzee, 135
Trades vs. Occupations as Training Bases, Verne C. Fryklund, 169

Safety

Emery Wheel Safety, R. W. Burgett, 318
Safety Precautions in the Millroom, J. G. Grove, 375
Traffic Safety Program, R. F. Jennings, 299
Woodworking Machinery and Safety, Axel J. Kise, 60

School and Shop Utilities

Accurate Boy-Made Slide Rule, John Edmund Crawford, 190
Bench Tool Holder, Gerald L. Waltrip, 132
Bending Jig, A. H. Luehring, 220
Circle or Wheel Cutter, Leonard Wright, 256
Clamp for Gluing Rack, Louis F. Barocci, 324
Construction of Venetian Blinds in School Shop, John G. Rohner, 315
Displaying Visual Aid Material, H. L. Stiles, 388
Draftsman's Case, J. E. Ray, 351
Easy Method for Binding Loose Leaves, Lee M. Klinefelter, 158
Educational Charts, Frank C. Cech, 246
Enlarging Drawings with Opaque Projection Lantern, Jos. J. Lukowitz, 253
File Box, Byron M. Taylor, 293
Folding Finishing Booth, J. Edward Bond, 254
Gas Washer, George C. Donson, 257
Glazing Frame, B. E. Banks, 326
Hair Drier for Gymnasium or Natatorium, Wm. R. Wood and E. R. Rerucha, 161
Job Sheet or Blueprint Holder, E. A. Rerucha, 199
Opportunity — a Testing Device, Harvey E. Parry, 336
Portable Storage Boxes, F. B. Miller, 257
Screw-Driver Shield, Jos. J. Lukowitz, 219
Soldering Tray, Thomas E. Houston, 254
Teaching Aids, Carl von Lindeman, 191
Time-Card and Record-Card Rack, Arthur K. Stinson, 289
Tool and Hardware Cabinet, C. M. Jochem, 126
Traveling Exhibit Case, C. R. Dixon, 384
Tray for Drafting Instruments, P. G. Frasier, 387
Workshop-Bench Legs, D. C. Unger, 390

Sheet Metal

Kitchen Memo, Dale E. Mansperger, 20
Seas-O-Tainer, Dale E. Mansperger, 93

Shop Kinks

Dressing a Carborundum Stone, Frank Cerveny, 258
Dressing Carborundum Stones, Robert Studebaker, 163
Making Carving Tools from Old Files, Leigh M. Nason, 349
Rebuilding Hammer Edges with Oxyacetylene Torch, E. D. Soderstrom, 123

Shop Management (Methods of Organization, Job-Card Forms)

Controlling Theft in the School Shop, E. L. Southard, V. J. Lockett, and M. M. Black, 55
General-Shop Organization, James C. Jenkins, 374
Profile-Type Rating Card, F. C. Finsterbach, 214
Progress Cards Instead of Report Cards, J. Allen Morris, 310
Time-Card and Record-Card Rack, Arthur K. Stinson, 289

CATALOGED
V. 25

Sports, Games, Toys, Models, Camp Work, Archery
Atwood's Championship Monoplane, Terence Vincent, 248
Child's Folding Ironing Board, Louis F. Barocci, 390
14-Ft. Kayak, James McGregor, 31
How to Make Rawhide, W. Ben. Hunt, 96
Indian Beadwork, W. Ben. Hunt, 95
Indian Gourd Rattles, W. Ben. Hunt. 131
Indian Moccasins, W. Ben. Hunt, 194
Indian Necklaces, W. Ben. Hunt, 255
Indian Snowshoes of Wood, W. Ben. Hunt, 327
Indian Symbols and Designs, W. Ben. Hunt, 291
Indian War Clubs, W. Ben. Hunt, 154
Pushmobile Race, Wilbur S. Nay, 12
Sailing Kinks, Claude W. Horst, 16
Slab Furniture, W. Ben. Hunt, 220, 251
Totem Pole, W. Ben. Hunt, 394
Toy Pistol, E. A. Rerucha, 225
12-In. Open-Cockpit Motorboat, J. H. Werwick, 217

Supervision
Auto as a Vitalizing Factor, John E. Quick, 271
Criteria of Curriculum Construction, Burl N. Osburn, 229
Drafting-Room Practice, Heber A. Sotzin, 267
Practical Arts as Moral Education, Arthur B. Mays, 165
Responsibility of the Industrial-Arts Teacher, Thomas Diamond, 78
Straight Thinking About Integration, Jesse E. Rathbun, 234
Survey of Drafting-Room Practices, F. R. Kepler, 71
Thoughts for this Year's Graduates, Douglas B. Hobbs, 143

Supplements
Architectural Drawing Test No. 7 and Scoring Sheet, Ren Aton, July
Artistic Wrought-Iron Work, C. Weiler and Karl Ufer, III, 14; IV, 34A; V, 89; VI, 113
Chords for Spacing Off Circumference, October
Decimal Equivalent Tables, September
End Table, Clifford B. Smith, June
Lumber Chart, John J. Metz, November, December
Miscellaneous Uses of the Steel Square, K. L. Julson, May
Tilt-Top Table, Clifford B. Smith, August

Teaching Aids
Educational Charts, Frank C. Cech, 246
Silent Teacher, Delmar Olson and Wm. L. Hunter, 242
Teaching Aids, Carl von Lindeman, 191

Tests and Testing
Architectural Drawing Test No. 7 and Scoring Sheet (Supplement), Ren Aton, July
Auto-Mechanics-Shop Test, George G. Mann, 357
Electrical Test, H. J. Johnson, 281
Manipulative Test, Clifford L. Yard, 283
Opportunity — A Testing Device, Harvey E. Parry, 336
Strengthening Industrial-Arts Testing and Guidance, George C. Decker, 172
Testing in Terms of Our Objectives, Allen A. Cooper, 313
Typesetting Contest, R. Randolph Karch, 337

Turning
Marine Ash Tray, Nelson Iafrate, William Drozdowski, and Clifford L. Yard, 386

Upholstering
Using Liquid Moth Exterminator in Upholstered Furniture, Herbert Bast, 93

Vocational Education
Age at Entrance and Term of Stay, Max S. Henig, 203
Class Personnel Organization, Stanley S. Radford, 275
Commencement Address, Robert C. Woellner, 201
Controlling Theft in the School Shop, E. L. Southard, V. J. Lockett, and M. M. Black, 55
Criteria of Curriculum Construction, Burl N. Osburn, 229
Directory, Fred C. Finsterbach, 313
Displaying Visual Aid Material, H. L. Stiles, 388
Enlarging Drawings with Opaque Projection Lantern, Jos. J. Lukowitz, 253
Fable for the Ex-Tadpole Class, Edwin M. Wyatt, 312
General Metal-Shop Organization, G. A. Wickman, 141
Graduate Work, R. W. Burgett, 1
How Do You Grade or Mark?, Stanley J. Pawelek, 145
Industrial Education and Industrial Museums, John Woodman Higgins, 137
Industrial Laboratory, A. C. Tagg and Leslie E. Wagner, 35
Industrial Trip, Stanley S. Radford, 208
Interest and Learning, Gilbert L. Betts and Roy R. Van Duzee, 135
Looking Around, Clement J. Freund, 180
Machine-Shop Apprentice Training, Rowland L. Hill, 41
Maintenance Man of Real Property, Edward C. Galligan, 88
Organizing Evening Classes, Reginald A. Ivy, 297
Points for Personal Analysis, Louis M. Roehl, 248
Reading of Trade Magazines in School Shops, William J. Patlow, 58
San Antonio Greets the American Vocational Association, Arda Talbot Raht, 363
Securing Public Approval for the School Printshop, Bert Popowski, 150
Selection of a Vocation, R. T. Craigo, 334
Shopwork for the Special Class, Kenneth R. LaVoy, 53
Teaching Aids, Carl von Lindeman, 191
Thoughts for this Year's Graduates, Douglas B. Hobbs, 143
Trade-Vocabulary Word Study: The Engine Lathe, Victor J. Smith, 304
Trades vs. Occupations as Training Bases, by Verne C. Fryklund, 169
Training Youth to Meet Its New Needs, Deyo B. Fox, 371
Useful Publicity Program, D. W. Castle, 240
Vacation Enjoyed by Students of Electricity, B. E. Smead, 162
Vocabulary Load of the Individual Instruction Sheet, Max S. Henig, 300
Vocational Education, Edward A. Fitzpatrick, 370
Vocational Education in Reformatory, R. M. Kindred, 48

Vocational Guidance
Selection of a Vocation, R. T. Craigo, 334

Woodworking
Atwood's Championship Monoplane, Terence Vincent, 248
Bathroom Stand, Frank E. Anthony, 287
Bedroom Chair Made from a Nail Keg, Herbert Bast, 26
Bench Tool Holder, Gerald L. Waltrip, 132
Brackets and Signs for Home and Business, Harold O. Akeson, 322
Candleholder, Geo. G. Greene, 223
Centerpiece, W. Ben. Hunt, 328
Child's Folding Ironing Board, Louis F. Barocci, 390
Chords for Spacing Off Circumferences (Supplement), October
Circle or Wheel Cutter, Leonard Wright, 256
Clamp for Gluing Rack, Louis F. Barocci, 324
Construction of Venetian Blinds in School Shop, John G. Rohner, 315
Corner Telephone Cabinet, R. M. Hammes, 391
Decimal Equivalent Tables (Supplement), September
Dinner Chime, E. LeRoy Longley, 128
Dollhouse Furniture, John J. Metz and Peter Dillman, 32
Draftsman's Case, J. E. Ray, 351
Dressing a Carborundum Stone, Frank Cerveny, 258
Dressing Carborundum Stones, Robert Studebaker, 163
Emery Wheel Safety, R. W. Burgett, 318
End Table (Supplement), Clifford B. Smith, June
Folding Finishing Booth, J. Edward Bond, 254
14-Ft. Kayak, James McGregor, 31
Furnishing a Garden, Lester V. Hill, 15
Glazing Frame, B. E. Banks, 326
Guiding Principles in Planning a Course in Woodwork, Sam M. Ford, 216
Hanging Bookshelf, R. M. Hammes, 325
Indian Necklaces, W. Ben. Hunt, 255
Indian Snowshoes of Wood, W. Ben. Hunt, 327
Indian Symbols and Designs, W. Ben. Hunt, 291
Lumber Chart, John J. Metz (Supplement), November, December
Making Carving Tools from Old Files, Leigh M. Nason, 349
Manipulative Test, Clifford L. Yard, 283
Marbled Penholders, Jos. J. Lukowitz, 28
Marblehead-Class Sailing Sloop, Claude Wm. Horst, 117, 145
Marine Ash Tray, Nelson Iafrate, William Drozdowski, and Clifford L. Yard, 386
Medicine Cabinet, John J. Metz and Peter Dillman, 99
Memo Pad, Wayne S. Scott, 125
Miniature Log Cabin, Z. S. McIntosh, 25
Miscellaneous Uses of the Steel Square (Supplement), May
Modern Radio Bench, Lawrence Wolske, 285
Modernistic Table, Matthew L. Brady, 351
Mortise-and-Tenon Joint, John E. Doren, V, 31; VI, 129
Opportunity — a Testing Device, Harvey E. Parry, 336
Portable Storage Boxes, B. F. Miller, 257
Reading Lamp, W. L. Dorrance, 29
Safety Precautions in the Millroom, J. G. Grove, 375
Sandalwood, Ed. Blanchard, 244
Screw-Driver Shield, Jos. J. Lukowitz, 219
Sewing Cabinet, J. J. Sasser, 24
Slab Furniture, W. Ben. Hunt, 220, 251
Small Modern Wall Shelf, Glenn H. Osborne, 382
Steam Engine and Boiler, August Flam, 186
Suggestive Designs for Breadboards, E. H. Grosskopf, 160
Sunrise Memorandum Pad, Hazel F. Showalter, 92
Tilt-Top Table (Supplement), Clifford B. Smith, August
Tool and Hardware Cabinet, C. M. Jochem, 126
Totem Pole, W. Ben. Hunt, 394
Toy Pistol, E. A. Rerucha, 225
Traveling Exhibit Case, C. R. Dixon, 384
Tray for Drafting Instruments, P. G. Frasier, 387
12-In. Open-Cockpit Motorboat, J. H. Werick, 217
Using Liquid Moth Exterminator in Upholstered Furniture, Herbert Bast, 93
Woodworking Machinery and Safety, Axel J. Kise, 60
Ye Old Towne Pump Desk Lamp, Elwood B. Hovey, 315

AUTHORS

AKESON, HAROLD O. Brackets and Signs for Home and Business, 322
ANDERSON, H. E. and W. A. DeVETTE. Sheet-Metal Urns, 320
ANTHONY, FRANK E. Bathroom Stand, 287
ATON, REN. Architectural Drawing Test No. 7 and Scoring Sheet (Supplement), July
AUBLE, J. WOODARD. A New Idea on Indention, 354
AURIT, VAL H. Working Models for the Drafting Room, 256
AYERS, ARTHUR R. Judging Drawings at Exhibits, 18

BANKS, B. E. Glazing Frame, 326
BAROCCI, LOUIS F. Clamp for Gluing Rack, 324; Child's Folding Ironing Board, 390
BAST, HERBERT. Bedroom Chair Made from a Nail Keg, 26; Using Liquid Moth Exterminator in Upholstered Furniture, 93
BEATY, ORAN H. Jardiniere Stand, 359
BECKER, WILLIAM J. Chart — General-Metal-Shop Organization and Objectives, 195; Turned Match Box, 284; Weather Vane, 292; Napkin Clips, 347
BETTS, GILBERT L. and ROY R. VAN DUZEE. Interest and Learning, 135
BLACK, M. M., V. J. LOCKETT and E. L. SOUTHARD. Controlling Theft in the School Shop, 55
BLANCHARD, ED. Sandalwood, 244
BOATE, GERALD A. Colonial Lamp, 316
BOND, J. EDWARD. A Folding Finishing Booth, 254
BRACE, GEORGE M. Extracurricular Activities, 173
BRADY, MATTHEW L. Modernistic Table, 351
BROWN, D. W. Analysis of Senior-High-School Mechanical Drawing Texts, 110
BURGETT, R. W. Graduate Work, 1; Emery Wheel Safety, 318

CAMPBELL, H. D. and ILLINOIS DRAFTING RESEARCH COMMITTEE. Analysis of Architectural Drafting, 101
CASTLE, D. W. A Useful Publicity Program, 240
CAULWELL, PAUL L. Education for the Subnormal Boy, 54
CECH, FRANK C. Educational Charts, 246
CERVENY, FRANK. Dressing a Carborundum Stone, 258
CHURCHILL, MURRAY V. Mocking Bird Ash Tray, 290
COLLAR, TILDEN. Course in Electricity for the Junior High School, 69
COOPER, ALLEN A. Testing in Terms of Our Objectives, 313; Stimulating Interest in the Home Workshop, 329
CRAIGO, R. T. Selection of a Vocation, 334
CRAMLET, ROSS C. Zipper Brief Case, 97
CRAMLET, ROSS C. and WM. L. HUNTER. Home-Workshop Organization, 259
CRAWFORD, JOHN EDMUND. An Accurate Boy-Made Slide Rule, 190

DAVISON. HAROLD J. General Shop and the Student, 199
DECKER, GEORGE C. Strengthening Industrial-Arts Testing and Guidance, 172
DeVETTE, W. A. and H. E. ANDERSON. Sheet-Metal Urns, 320
DIAMOND, THOMAS. A Responsibility of the Industrial-Arts Teacher, 78
DiGIACOMO, FRANK. Marbleizing for Printshop, 355
DILLMAN, PETER and JOHN J. METZ. Dollhouse Furniture, 32; Medicine Cabinet, 99
DIXON, C. R. Traveling-Exhibit Case, 384
DONSON, GEORGE C. Gas Washer, 257
DOREN, JOHN E. Mortise-and-Tenon Joint, — V, 31; VI, 129

DORRANCE, W. L. Reading Lamp, 29
DROZDOWSKI, WILLIAM, NELSON IAFRATE, and CLIFFORD L. YARD. Marine Ash Tray, 386

ERICSON, EMANUEL E. Brass Candlesticks, 91
EVANCHO, MICHAEL. Horse Power, 23

FINSTERBACH, F. C. Profile-Type Rating Card, 214; A Directory, 313
FITZPATRICK, EDWARD A. Vocational Education, 370
FLAM, AUGUST. That Confusing "Side View," 20; Steam Engine and Boiler, 186
FORD, SAM. M. Guiding Principles in Planning a Course in Woodwork, 216
FOX, DEYO B. Training Youth to Meet Its New Needs, 371
FRASIER, P. G. Tray for Drafting Instruments, 387
FREUND, CLEMENT J. Looking Around, 180
FRICK, JOHN J. Wrought-Iron Hot-Pot Stand, 158
FRYKLUND, VERNE C. Trades v. Occupations as Training Bases, 169

GALLIGAN, EDWARD C. Maintenance Man of Real Property, 88
GETZ, WILBUR C. Coloring and Finishing Copper and Brass, 252
GIACHINO, J. W. Aviation in the High School, 236
GREENE, GEORGE G. A Simple Bird Bath, 157; Candleholder, 223
GROSSKOPF, E. H. Suggestive Designs for Breadboards, 160
GROVE, J. G. Safety Precautions in the Millroom, 375

HAMMES, R. M. A Hanging Bookshelf, 325; Corner Telephone Cabinet, 391
HELGERSON, A. M. Modernistic Wastebasket, 125
HENDERSON, H. H. A Fireplace Set, 388
HENIG, MAX S. Age at Entrance and Term of Stay, 203; Vocabulary Load of the Individual Instruction Sheet, 300
HIGGINS, JOHN WOODMAN. Industrial Education and Industrial Museums, 137
HILL, LESTER V. Furnishing a Garden, 15
HILL, ROWLAND L. Machine-Shop Apprentice Training, 41
HOBBS, DOUGLAS B. Thoughts for this Year's Graduates, 143
HOOPES, PAUL C. What to do with the Dull Child?, 8
HOPKINS, JAMES E. Industrial-Arts Teacher of the Future, 277
HORST, CLAUDE W. Sailing Kinks, 16; Marblehead-Class Sailing Sloop, 117, 145
HOUSTON, THOMAS E. Soldering Tray, 254
HOVEY, ELWOOD B. Ye Old Towne Pump Desk Lamp, 315
HUNT, W. BEN. Camp Knife, 27; Indian Beadwork, 95; How to Make Rawhide, 96; Indian Gourd Rattles, 131; Indian War Clubs, 154; Indian Moccasins, 194; Slab Furniture, 220, 251; Indian Necklaces, 255; Indian Symbols and Designs, 291; Indian Snowshoes of Wood, 327; Centerpiece, 328
HUNTER, WM. L. and ROSS C. CRAMLET. Home-Workshop Organization, 259
HUNTER, WM. L. and DELMAR OLSON. The Silent Teacher, 242

IAFRATE, NELSON, WILLIAM DROZDOWSKI, and CLIFFORD L. YARD. Marine Ash Tray, 386
ILLINOIS DRAFTING RESEARCH COMMITTEE and H. D. CAMPBELL. Analysis of Architectural Drafting, 101
IVY, REGINALD A. Organizing Evening Classes, 297

JAHNKE, W. F. and H. J. REITZ. Perpetual Calendar, 384
JENKINS, JAMES C. General-Shop Organization, 374
JENNINGS, R. F. Rewinding an Armature, 22; A Traffic Safety Program, 299
JOCHEM, C. M. Tool and Hardware Cabinet, 126
JOHNSON, DEAN. Ice Cutter, 355
JOHNSON, H. J. Electrical Test, 281
JOHNSON, HAROLD R. A Printshop Clean-Up System, 312
JULSON, K. L. Miscellaneous Uses of the Steel Square (Supplement), May

KARCH, R. RANDOLPH. Organizing Printshop Production, 210; A Printing-Woodworking Project, 319; Typesetting Contest, 337
KEPLER, F. R. That Confusing "Side View" Again, 38A; A Survey of Drafting-Room Practices, 71; Providing for Individual Differences, 330
KIECKHEAFER, H. F. Teaching Machine-Shop Practice, 340
KINDRED, R. M. Vocational Education in Reformatory, 48
KING, CARL H. Pencil Points, 352
KISE, AXEL J. Woodworking Machinery and Safety, 60
KLINEFELTER, LEE M. An Easy Method for Binding Loose Leaves, 158
KROGSTIE, ARTHUR. Vocational Automotive Electricity, 213

LANDIS, RUSSELL H. Guidance and Industrial Arts, 7
LaVOY, KENNETH R. Shopwork for the Special Class, 53
LINDEMAN, CARL von. Teaching Aids, 191
LOCKETT, V. J., E. L. SOUTHARD, and M. M. BLACK. Controlling Theft in the School Shop, 55
LONGLEY, E. LeROY. A Dinner Chime, 128
LUEHRING, A. H. Bending Jig, 220
LUKOWITZ, JOS. J. Marbled Penholders, 28; Screw-Driver Shield, 219; Enlarging Drawings with Opaque Projection Lantern, 253; Candy Dish, 283
LUSH, CLIFFORD K. Testing the Knowledge of Proofreaders' Marks, 130
LYLE, CHESTER A. Printing Education in America — I, 231; II, 264; Printing Education in America — III, 301

MANN, GEORGE G. An Auto-Mechanics-Shop Test, 357
MANSPERGER, DALE E. Kitchen Memo, 20; Seas-O-Tainer, 93
MANZER, EMERSON W. Pewter and Pewter Plates, 344
MARSCHNER, PAUL. Metal Wall Plaque, 123
MAYS, ARTHUR B. Practical Arts as Moral Education, 165
McGREGOR, JAMES. 14-Ft. Kayak, 31
McHENRY, PAUL T. Industrial Arts in Teacher Colleges, 176
McINTOSH, Z. S. Miniature Log Cabin, 25
McMILLAN, N. A. Casting in the School Shop — V, 116; VI, 280; VII, 379
McSTAY, HARRY J. Accommodating the Larger Class, 45
McSWEENEY, J. Inexpensive Conduit Work, 353
MEGOW, FRED W. Flowerpot Bracket, 162; Vacation Enjoyed by Students of Electricity, 162; Shoe Rack, 320
METZ, JOHN J. Lumber Chart (Supplement), November; December
METZ, JOHN J. and PETER DILLMAN. Dollhouse Furniture, 32; Medicine Cabinet, 99
MEYER, JOS. J. Buckle Bracelet, 157
MICHEELS, WILLIAM J. Industrial Arts in the Smaller School, 182
MIDDLETON, D. V. Imitation Marble Projects, 23
MILLER, D. G. A Paperweight, 353
MILLER, F. B. Portable Storage Boxes, 257
MILLER, KARL J. Bedside Lamp, 356
MOFFITT, FREDERICK JAMES. Industrial Arts Meets the Challenge, 81
MORRIS, J. ALLEN. Progress Cards Instead of Report Cards, 310
MUIR, FRANK. Cradle for Surface Gauge, 20

NASON, LEIGH M. Making Carving Tools from Old Files, 349
NAY, WILBUR S. Pushmobile Race, 12

OBERWEISER, GILBERT. The Universal Ohmmeter, 155; An A.C.-D.C. Radio Receiver, 382
OLSEN, J. K. Machine Screws, 185; Cut-Off Tools, 322
OLSON, DELMAR and WM. L. HUNTER. The Silent Teacher, 242
OSBORNE, GLENN H. A Small Modern Wall Shelf, 382
OSBURN, BURL N. Pages from a Museum Sketchbook (Trivet Candlesticks), 26; Criteria of Curriculum Construction, 229

PARRY, HARVEY E. Opportunity — A Testing Device, 336
PATLOW, WILLIAM J. Reading of Trade Magazines in School Shops, 58
PAWELEK, STANLEY J. How Do You Grade or Mark?, 145
POPOWSKI, BERT. Securing Public Approval for the School Printshop, 150
PUEHLER, S. H. A Metal Desk or Table Lamp, 152; A Copper Scroll Plant, 385; Novel Ash Receiver, 392

QUICK, JOHN E. Auto as a Vitalizing Factor, 271

RADFORD, STANLEY S. The Industrial Trip, 208; Class Personnel Organization, 275; Grading Mechanical Drawing, 377
RAHT, ARDA TALBOT. San Antonio Greets the A.V.A., 363
RATHBUN, JESSE A. Straight Thinking About Integration, 234; Portable Multi-Purpose Testing Panel, 348
RAY, J. E. Draftsman's Case, 351
REITZ, H. J. and W. F. JAHNKE. A Perpetual Calendar, 384
RERUCHA, E. A. An Electric Stove, 122; Hair Drier for Gymnasium or Natatorium, 161; Job Sheet or Blueprint Holder, 189; Toy Pistol, 225
ROEHL, LOUIS M. (Posters) Knowing the Objective, 97; Accuracy, 98; Sympathy, 129; Courtesy, 130; Points for Personal Analysis, 248; Ambition, 293; Confidence, 294; Adaptability, 325; Impatience, 326; Tact, 355; Vigor, 356; Self-Control, 387; Judgment, 388
ROHMER, FRANK D. Solenoid Engine, 223
ROHNER, JOHN G. Construction of Venetian Blinds in School Shop, 315

SASSER, J. J. Sewing Cabinet, 24
SCOTT, WAYNE S. A Memo Pad, 125
SHATTOW, EMIL E. Computative Method for Centering Views, 318
SHOWALTER, HAZEL F. Sunrise Memorandum Pad, 92
SMEAD, B. E. Vacation Enjoyed by Students of Electricity, 162; Installing Traffic Signals, 162
SMITH, CLIFFORD B. End Table (Supplement), June; Tilt-Top Table (Supplement), July
SMITH, HOMER J. The Three Degrees in Industrial Education, 85
SMITH, VICTOR J. Trade-Vocabulary Word Study: The Engine Lathe, 304
SNADDON, G. H. Industrial-Arts Work in the Lower Grades, 103
SODERSTROM, E. D. Rebuilding Hammer Edges with Oxyacetylene Torch, 123
SOTZIN, HEBER A. Drafting-Room Practice, 267
SOUTHARD, E. L., V. J. LOCKETT and M. M. BLACK. Controlling Theft in the School Shop, 55
STILES, H. L. Displaying Visual-Aid Material, 388
STINSON, ARTHUR K. Time-Card and Record-Card Rack, 289
STRUCK, F. THEODORE. The Challenge of Industrial Arts, 295
STUDEBAKER, ROBERT. Dressing Carborundum Stones, 163

TAGG, A. C. and LESLIE E. WAGNER. The Industrial Laboratory, 35
TAYLOR, BYRON M. File Box, 293
TAYLOR, M. D. Hydraulic Absorption Dynamometer, 286; An Alternating-Current Bell or Buzzer, 385
TRELEASE, H. Care of Electrical Measuring Instruments in the School Shop, 189
TROYER, H. R. An Alternating-Current Buzzer, 353
TWICHELL, GERTRUDE S. Enameling for Beginners, 206

UFER, KARL and C. WEILER. Artistic Wrought-Iron Work (Supplements), III, 14; IV, 34A; V, 89; VI, 113
UNGER, D. C. Workshop Bench, 390

VAN DUZEE, ROY R. and GILBERT L. BETTS. Interest and Learning. 135
VINCENT, TERENCE. Atwood's Championship Monoplane, 248

WAFFLE, HARVEY W. Why Teach Mechanical Drawing, 3; Mechanical Drawing in Wisconsin, 332
WAGNER, LESLIE E. and A. C. TAGG. The Industrial Laboratory, 35
WALKER, WARREN A. Combination Bending Jig, 193
WALTRIP, GERALD L. Bench Tool Holder, 132
WARNER, WILLIAM E. How Do You Interpret Industrial Arts?, 33
WEILER, C. and KARL UFER. Artistic Wrought-Iron Work (Supplements), III, 14; IV, 34A; V, 89; VI, 113
WERICK, J. H. 12-In. Open-Cockpit Motorboat, 217
WERNER, S. O. Magnet Charger, 350
WICKMAN, G. A. General Metal-Shop Organization, 141
WILLS, WILLIAM W. The Industrial-Arts Classrooms, 306
WOELLNER, ROBERT C. Commencement Address, 201
WOLSKE, LAWRENCE E. Modernistic Smoking Stand, 91; Modern Radio Bench, 285
WOOD, WM. R. and E. R. RERUCHA. Hair Drier for Gymnasium or Natatorium, 161
WRIGHT, LEONARD. Electric Candle, 125; Circle or Wheel Cutter, 256
WYATT, EDWIN M. A Fable for the Ex-Tadpole Class, 312

YARD, CLIFFORD L. Manipulative Test, 283
YARD, CLIFFORD L., NELSON IAFRATE, AND WILLIAM DROZDOWSKKI. Marine Ash Tray, 386

Copyright, 1936
The Bruce Publishing Company
Printed in the United States of America